

ABSTRACT

The development of the Internet of Things technology has grown rapidly and applied to various fields. Starting from smart health, smart farming, smart city, to smart home. The construction of an IoT network consists of a variety of interconnected nodes. The more implementation of nodes will be a problem with the network load. A method is needed to get good IoT network quality such as time efficiency, data speed, data accuracy, and power consumption are important when building this network. One method is to use the right protocol on the network that is built.

The use of the right protocol will be very helpful in the performance of the network being built. With the use of the MQTT protocol which has the advantage of saving bandwidth that uses less battery power because this protocol uses only a few layers, this protocol is suitable for devices that have memory limitations. Then there is the XMPP Protocol which is an IoT standard that can be based on text, sound or video with open XML technology. The XMPP protocol has many advantages offered in developing instant messaging services, especially in terms of servers.

The results of the research show that the application of the MQTT protocol is the right choice to be applied to low bandwidth networks and devices that have limited memory processing with a throughput of 316 Bps, an average delay of 490.51 ms, packet received 1139,6 Bytes. Compared with XMPP which is more suitable to be applied to the client to the server because of its features. The application with this protocol mode results in a availability probability of 97,647% and reliability of 99,4%.

Keywords : *Internet of Thinks, Smart home, Raspberry Pi, MQTT, XMPP.*